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54 **IMPROVED TREATMENT LIQUID DISPENSER FOR WATER CLOSETS.**

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US - A - 2 545 755
US - A - 2 682 059
US - A - 2 839 763

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Description

The present invention refers to a dispensing device for administering a pre-determined amount of treatment liquid into water closets, according to the preamble of claim 1.

In a known device of the above-mentioned type (US-A-2 682 059), a chamber is provided within a casing, which chamber is connected by means of a pipe to the flush pipe of the water closet. The inlet of this chamber can be closed by means of a valve which is connected to a float provided within said chamber.

Flushing water enters by said inlet said chamber until the water level rises said float and thus said valve which closes said inlet.

In the known device, said float is connected to a mechanically activated dispenser valve which is provided in the outlet of a container for treatment liquid. Thus, a metered amount of treatment liquid passes from said container into the water within said chamber.

At the end of the flushing, the pressure in the inlet of said chamber is released, said valve opens and the water within said chamber mixed with said treatment liquid is emptied into the flush pipe; the descending float closes hereby said dispenser valve.

The invention according to claim 1 uses instead of said mechanic dispenser valve a siphon valve actuated by the influx of flooding water.

This invention concerns a metering dispenser of treatment liquid in water closets, and more particularly this invention concerns a device for the delivery of a determined amount of a bacteriostatic liquid agent at the time of flushing in such a way as to leave, after each operation, a bacteriologically "clean" unit for the next user.

The device according to the invention can advantageously be combined with a device delivering environmental deodorant by means of indirect positive activation with each operation.

According to this invention a device is foreseen associated with a dynamic liquid injector in a water-flush falling column associated with a valve device which allows the withdrawal, from time to time, of an amount of water precisely metered at the time of flushing by putting the said amount of water in communication with a liquid-liquid exchanger associated with a feed supplier from a container containing a bacteriostatic liquid or other treatment liquid.

The container, valve device and bottle of bacteriostatic liquid or other treatment liquid is designed in such a way that the movement of water into it induces an aspiration action such that a supplier of environmental deodorant is activated, the deodorant being impregnated onto felt or similar material able to contain a volatile liquid or solid.

In a further aspect of the present invention, there is administered a metered amount of deodorant into the atmosphere which comprises a dispensing device as here in before defined, an aperture fitted to the casing of the device, and an

environmental deodorant dispenser impregnated with a volatile liquid or solid, the components being arranged such that during a flushing cycle, air is displaced through said aperture and a metered amount of deodorant is expelled into the atmosphere.

This invention will now be described by reference to one of its forms of embodiment currently preferred, this being illustrative and not limiting, and based on the appended design diagrams in which:

Figures 1, 2 and 3 show schematically in perspective, lateral and plan views respectively, the design of a device according to this invention.

Figure 4 shows an even more schematic view of the device according to the invention in the resting position.

In chamber 6 is found the dispenser-metering valve associated with tank 2 of the treatment or bacteriostatic liquid, made as described in the US-A- 2,839,763

The functioning and structure of the dispenser-metering valve shown in 7 is clearly described in detail in this US Patent publication, and a detailed description is not considered necessary here. It is enough to say that, with a siphon action movement, for each immersion of valve 7 a determined amount of bacteriostatic or other treatment liquid is delivered. The dispensing phase on the part of valve 7 is shown in Figure 6.

In Figure 7 is shown the end of the dispensing operation. In this phase the predominance of the water column traversing pipe 9 is in the final phase and there is no longer a hydraulic counter-pressure forcing valve 4 against seating 4a' and prohibiting the passage of water into chamber 3. Consequently, the predominance of the added treatment of bacteriostatic agent liquid present in chambers 3 and 6 prevails over the thrust of water in tube 9 and reaches the water closet unit.

It will be seen that concurrently with the actions described above there will be a displacement of air within the casing 1, whereby the deodorant dispenser element shown in Figure 1 will be subjected to a current of air which consequently releases a deodorant agent into the environment.

It will be seen that the solution according to this invention is particularly advantageous in that a calibrated dispensation of treatment agent, particularly a bacteriostatic agent, is produced without the use of external motor force save the almost gratuitous force supplied by the column of flushing water.

As an example, considering that container 2 can suitably be produced with a capacity of 600 ml and with a dispensation through metering valve 7 of 0.5 ml per flush, this content will suffice for 1200 flushes. Considering a mean use of 18 flushes per day, an operational time of 76 days can be attained.

It should be noted that with the device according to the invention, since the dispensing of treatment liquid is made at the end of the

flushing, the concentration of treatment liquid remaining in the stagnant water of the water closet will be much higher than that obtained in similar devices with dilution in the entire mass of flushing water.

Figure 5 shows, in succession to Figure 4 a view of the device according to the invention in there filling phase during a flushing operation.

Figure 6 shows a view analogous to that of Figure 5 in the phase of in flow of bacteriostatic liquid or other treatment liquid, and

Figure 7 shows, similarly to Figure 6, the discharge phase of the device according to the invention.

With reference to Figures 1 to 3, according to the invention the device comprises a casing 1 containing a tank 2 of treatment liquid, particularly a bacteriostatic liquid, an aspiration chamber 3 the flooding of which is controlled by a valve 4 associated with a float 5, and an exchange or dilution chamber 6 fed from tank 2 via a metering dispenser valve 7. The side of valve 4 turned towards the outside is connected by pipe 8 to the water flush falling column 9. The water is forced through conduit 8 by means of a hydrodynamic dispenser device symbolized by the element 10.

Corresponding to the external part turned towards the outside of casing 1 is conveniently arranged a dispenser of environmental deodorant 11 of the type comprising a felt unit or other similar material which dispenses a deodorant in accordance with the aspiration action induced by the displacement of liquid in chambers 3 and 6.

With reference to Figures 4-7, the functioning of the device according to this invention will now be described.

As shown in Figure 4, in the resting position the valve 4 is disposed against the seal present at the end of pipe 8, and the device is ready for operation.

With a flushing operation the tube 9 is traversed by a column of moving water, part of which is captured by element 10 of the hydrodynamic dispenser and is sent through pipe 8 so as to refill chamber 3 and raise the float 5 until the valve 4 blocks the subsequent flow of water by sealing against seating 4a. The water which reaches the aspiration chamber 3 passes through a passage (no reference numeral) to reach the exchange or dilution chamber 6.

Claims

1. A dispensing device for administering a pre-determined amount of treatment liquid into water closets, comprising a casing (1) within which is a chamber (3, 6) having a water inlet which is adapted to the connection with the flush pipe of a water closet, a float-operated valve (4, 5), the float (5) thereof being disposed within said chamber (3, 6) and the valve (4) thereof being adapted to block said water inlet, and a container-

dispenser (2, 7) connected with the chamber (3, 6) and being adapted to dispense said pre-determined amount of treatment liquid into said chamber (3, 6) when the chamber is flooded by a flow of flushing water,

characterized in

- that the chamber (3, 6) is partitioned into a first chamber (3) comprising said water inlet and said float (5) and a second chamber (6) co-operating with said container-dispenser (2, 7), the arrangement of said first and second chamber being such that flooding water may pass freely between the two chambers, and

- that the container-dispenser (2, 7) is formed as a siphon valve actuated by the influx of flooding water.

2. A dispensing device as claimed in claim 1, characterized by an aperture fitted to the casing (1), and an environmental deodorant dispenser (11) impregnated with a volatile liquid or solid, the components being arranged such that during a flushing cycle air is displaced through said aperture, and a metered amount of deodorant is expelled into the atmosphere.

Revendications

1.- Dispositif distributeur destiné à débiter une quantité prédéterminée de liquide de traitement dans des W.-C., comprenant un boîtier (1) dans lequel se trouvent une chambre (3, 6) comportant une entrée d'eau destinée à être raccordée à la colonne de chasse d'un W.-C., une valve à flotteur (4, 5) dont le flotteur (5) est disposé dans la chambre (3, 6) et dont la valve (4) est à même d'obturer l'entrée d'eau et un réservoir-distributeur (2, 7) raccordé à la chambre (3, 6) et à même de distribuer la quantité prédéterminée de liquide de traitement dans la chambre (3, 6) lorsque cette chambre est remplie par un afflux d'eau de chasse,

caractérisé en ce que

- la chambre (3, 6) est subdivisée en une première chambre (3) comprenant l'entrée d'eau et le flotteur (5) et une seconde chambre (6) coopérant avec le réservoir-distributeur (2, 7), l'agencement de la première et de la seconde chambre étant tel que l'eau de remplissage puisse s'écouler librement entre les deux chambres, et

- le distributeur (2, 7) a la forme d'une valve à siphonnement actionnée par l'afflux d'eau de remplissage.

2.- Dispositif distributeur suivant la revendication 1, caractérisé par une ouverture prévue dans le boîtier (1) et par un distributeur de désodorisant (11) imprégné d'un liquide ou d'un solide volatil, les éléments étant agencés de telle sorte que pendant un cycle de chasse, de l'air passe par l'ouverture et une quantité mesurée de désodorisant soit expulsée dans l'atmosphère.

Patentansprüche

1. Spendeeinrichtung zum Ausgeben einer vorbestimmten Menge an Zugabeflüssigkeit in Toiletten, mit einem Gehäuse (1), innerhalb dessen sich eine Kammer (3, 6) mit einem Wassereinlaß befindet, der zum Anschluß an das Spülrohr einer Toilette eingerichtet ist, einem schwimmerbetätigten Ventil (4, 5), dessen Schwimmer (5) innerhalb der Kammer (3, 6) angeordnet ist und dessen Ventil (4) dazu eingerichtet ist, den Wassereinlaß abzusperren, und einem Ausgabebehälter (2, 7), der mit der Kammer (3, 6) verbunden und dazu eingerichtet ist, die genannte, vorbestimmte Menge an Zugabeflüssigkeit in die Kammer (3, 6) auszugeben, wenn die Kammer von einer Spülwasserströmung geflutet wird, dadurch gekennzeichnet,
 - daß die Kammer (3, 6) in eine erste Kammer (3), die den Wassereinlaß und den Schwimmer (5) aufweist, und eine zweite Kammer (6) unterteilt ist, die mit dem Ausgabebehälter (2, 7) zusammenwirkt, wobei die erste und zweite Kammer so angeordnet sind, daß flutendes Wasser zwischen den beiden Kammern frei hindurchtreten kann, und
 - daß der Ausgabebehälter (2, 7) als Siphonventil ausgebildet ist, das durch das Einströmen des flutenden Wassers betätigt wird.
2. Spendeeinrichtung nach Anspruch 1, gekennzeichnet durch eine Öffnung, die am Gehäuse (1) angeordnet ist, und einen Umgebungsluft-Deodorantspender (11), der mit einer flüchtigen Flüssigkeit oder einem flüchtigen Feststoff imprägniert ist, wobei die Teile so angeordnet sind, daß während des Spülzyklus Luft durch die Öffnung verdrängt wird und eine dosierte Menge an Deodorant in die Umgebungsluft ausgestossen wird.

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FIG. 1

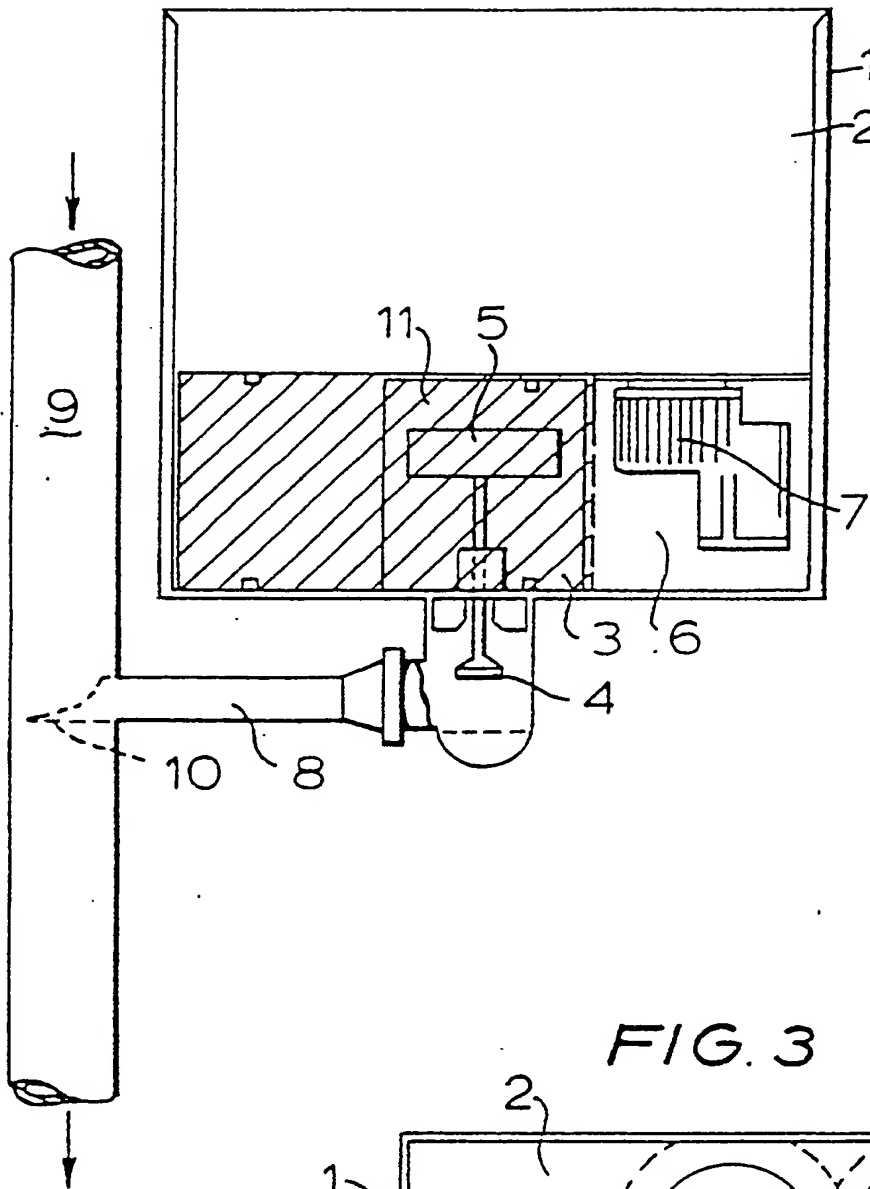


FIG. 2

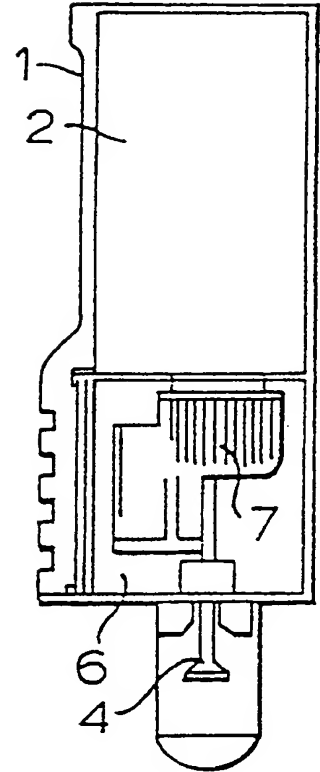


FIG. 3

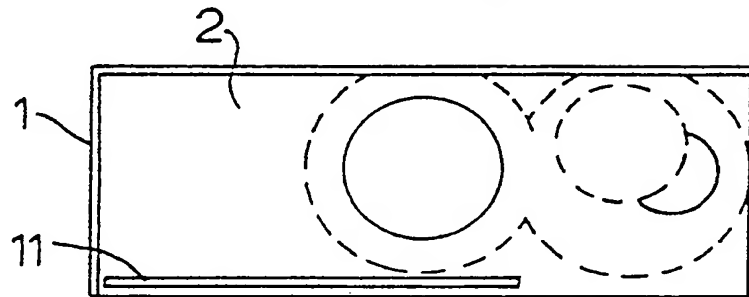


FIG. 4

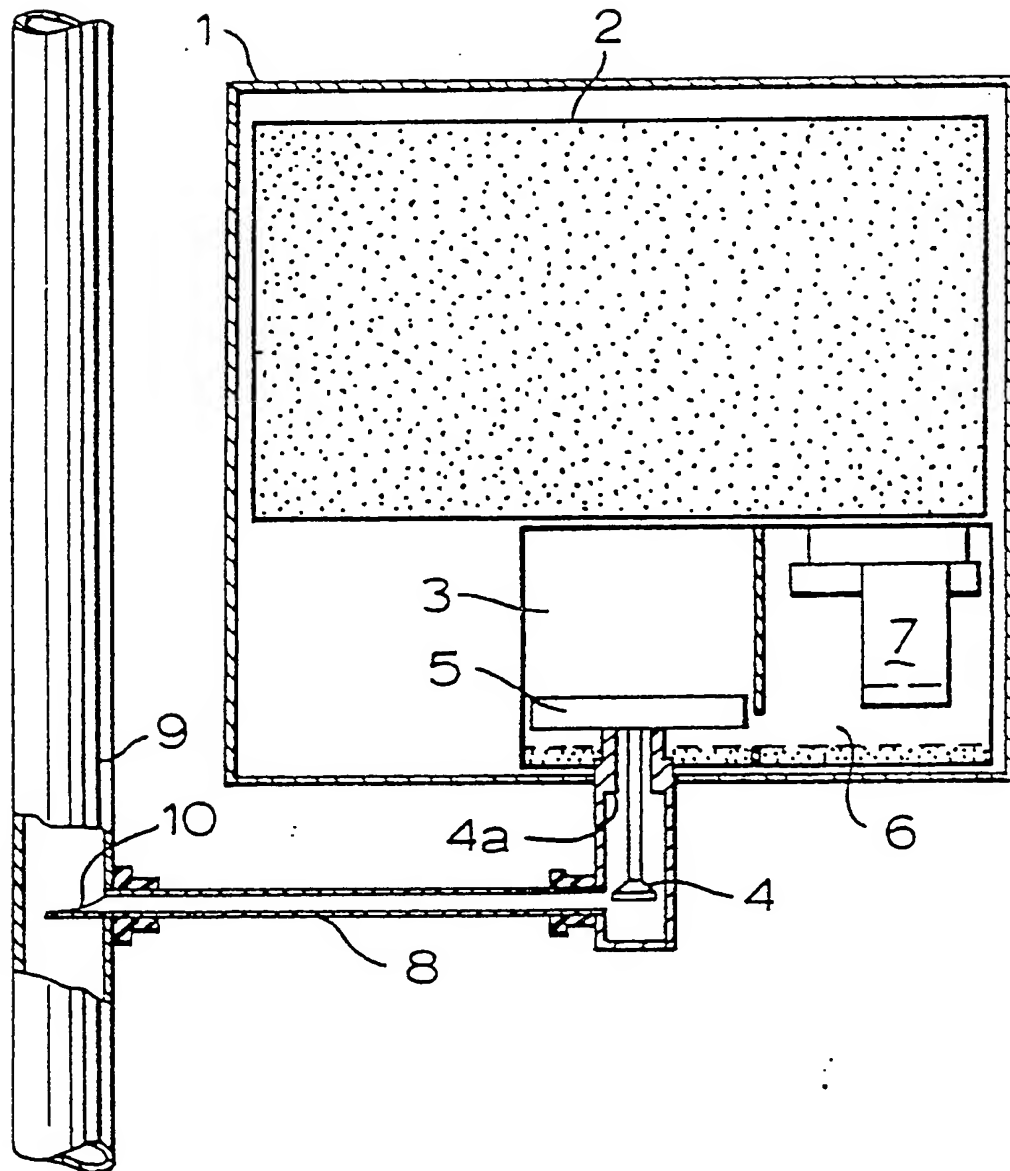


FIG. 5

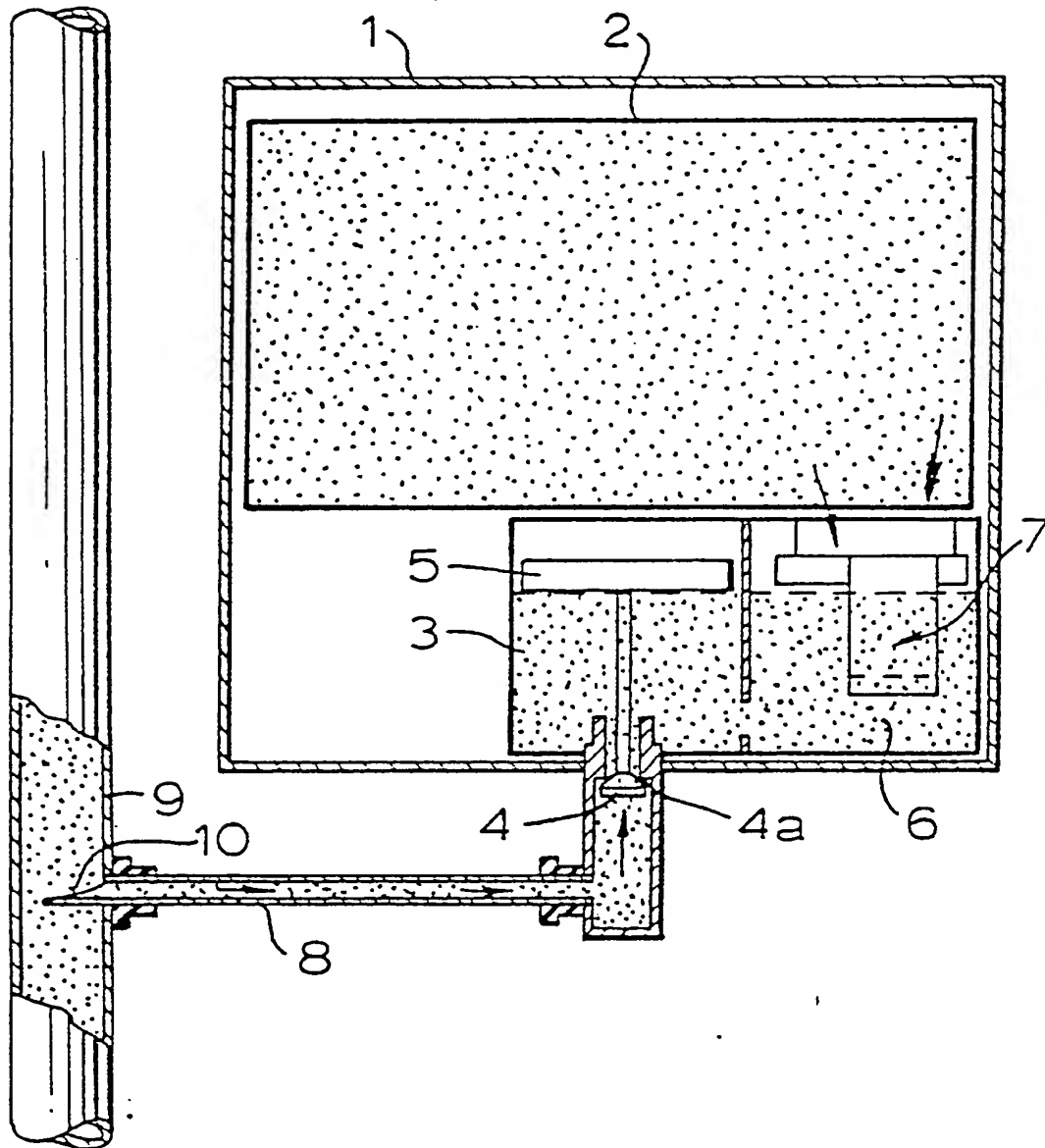


FIG. 6

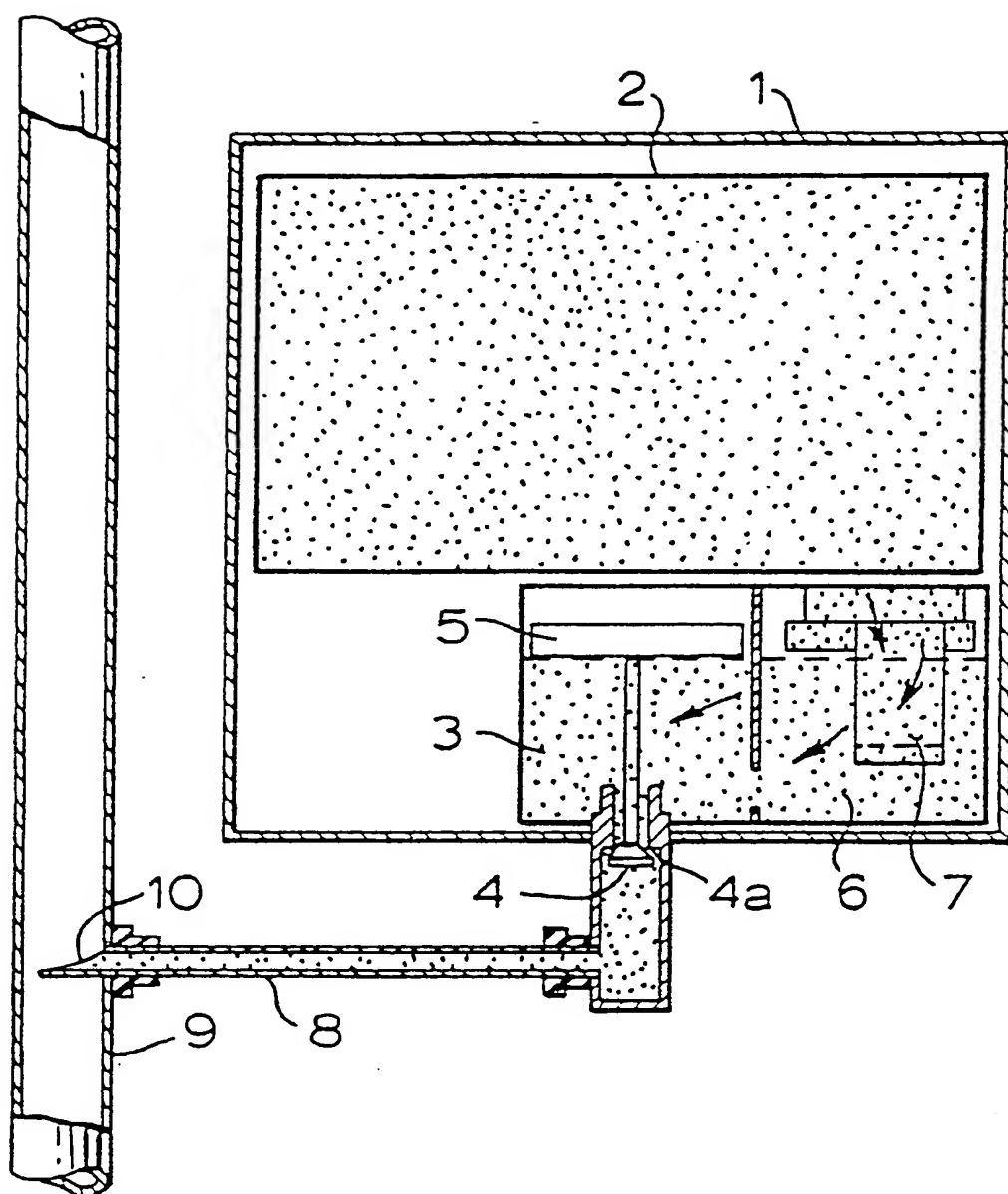


FIG. 7

